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of the main features of a country, its ranges of mountains, rivers, etc., as the chief aids in the study of geography, which ought, therefore, to be under the charge of the physical and mathematical teachers, whose sense of form and skill in drawing was far better developed than in teachers of philological and historical subjects.——Dr. Neis, a surgeon in the French navy, has recently made a journey in Indo-China, and discovered the source of the Dong-nai River in 12° 30′ N. lat., 108° 25′ 15″ E. long.——In describing Dr. Heath's recent discoveries on the Beni, as mentioned in the NATURALIST for June, the Proceedings of the Royal Geographical Society says: "As Dr. Heath claims to have been the first white man to see the mouth of the Madre de Dios, it may be interesting to remind our readers that in a paper[1] read before the society on February 25, 1867, our honorary corresponding member, Professor Raimondi, informed us that in March, 1861, Don Faustino Maldonado, of Tarapoto, in Peru, with seven companions, had descended the Madre de Dios into the Mamoré, and that though the leader and three others were drowned in the dangerous rapids called the Calderao do Inferno, the remainder continued the voyage down the Madeira into the Amazon."——A correspondent of the London *Athenæum* has discovered in a copy of the Lyons edition of the "Cosmographia" of Hylacomylus, published in 1514, a map which is the earliest known upon which the name America appears. The new world is represented by a large island in the "Oceanus Occidental," and across it is engraved "America noviter reperta." Heretofore it has been supposed that the most ancient map on which the name appears is the "Typus Orbis," printed at Vienna in 1520.

MICROSCOPY.[2]

MICROGRAPHIC TRACINGS.—In many physiological tracings it has been thought that some of the curves supposed to be of significance may possibly have been the result of oscillations of the lever. It seemed, therefore, to M. Marey, desirable to remove this doubt, and to demonstrate the fidelity of the instruments by showing that identical tracings may be obtained by other instruments which cannot be affected by this cause. This result has been attained by making the scale of record extremely small. If, for instance, the tracings of a sphygmograph are five (5) millimeters high, it is possible that the lever may, in its rapid movement, go too far before the friction arrests it. If, however, the amplitude of the movement is reduced to one-tenth ($\frac{1}{10}$), the effect of the momentum of the lever will be reduced to one-hundredth ($\frac{1}{100}$, the square root) of that which it possessed in the former case. But in order to preserve the form of the trace, the surface on which the lever writes must move very slowly, not more than one (1) millimeter per second. The details of the curves thus obtained, will not be visible to the naked eye, but if placed under a microscope and magnified twenty (20) diameters, their form can be plainly seen. This method of record has another advantage. Donders has remarked that a recording apparatus is only accurate for movements of a certain rapidity, for which it has been constructed, and if it is made to record movements of much greater rapidity, they are not accurately represented. But the microscopic inscription multiplies almost indefinitely the field of work for the graphic method, by obtaining a sufficiently fine steel point to write, and a black layer thin enough to receive the tracing. M. Marey has already succeeded in receiving and registering the movement of a tuning fork vibrating two hundred (200) times per second, and in recording the vibrations of a voice singing at one end of a tube. Even the vibrations of blood in a vessel, which causes the "bruit de souffle," seem to be among the movements which can be recorded. At least, in the case of elastic tubes and artificial aneurisms, M. Marey has succeeded in recording the vibrations produced by a current of water, and which are also audible. A possible source of error in this method, which must not be overlooked, is the friction of the style against the glass. Momentum and friction are two sources of possible error in all tracings. The former augments with every increase in the range of movement of the lever, the latter with every decrease; and special care will be necessary to reduce the friction to a minimum to avoid this error.—*London Lancet.*

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[1] R. G. S. Journal, Vol. xxxvii, p. 137.

[2] This department is edited by Dr. R. H. WARD, Troy, N. Y.

SEA MOSSES.—A charming book on this subject, by Rev. A. B. Hervey, a prominent and skillful microscopist, just published by S. E. Cassino, of Boston, will be of the greatest value to microscopical students. Those accustomed to the study of the Algæ, will find it most convenient for determining species; while to all it is full of useful hints as to the character, location and preservation of these attractive objects. The many illustrations are printed in life-like colors, while the text is so arranged that the exquisite sea weeds of our coast, hitherto determined with difficulty, may be analyzed almost as easily as the wayside plants.

ANGULAR APERTURE.—The note on this subject, by Mr. Frank Crisp, Secretary of the Royal Microscopical Society, occupies about sixty pages of the journal of the society, and is probably the most elaborate editorial on microscopy ever published. It treats of the theory of microscopical aperture, vision and resolution in a most thorough and systematic manner, utilizing a vast amount of material acquired in correspondence with Professor E. Abbe, of Jena, to whom we are indebted for the first and only rational solution of this complicated problem. Taken in connection with recent papers by Professor Abbe himself, the modern doctrine of wide-angled objectives and resolving power is now for the first time fairly within reach of English readers.